



## SEQUENCE LISTING

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<110> Lawn, Richard M.  
Wade, David  
Garvin, Michael

<120> Compositions and Methods for Increasing Cholesterol Efflux and Raising HDL using ATP Binding Cassette Transporter Protein ABC1

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<140> 09/596,141  
<141> 2000-06-16

<150> US 60/140,264  
<151> 1999-06-18

<150> US 60/153,872  
<151> 1999-09-14

<150> US 60/166,573  
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<170> PatentIn Ver. 2.0

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Gly Ile Gly Val Gln Trp Asp Asn Leu Phe Glu Ser Pro Val Glu Glu  
805 810 815  
Asp Gly Phe Asn Leu Thr Thr Ser Ile Ser Met Met Leu Phe Asp Thr  
820 825 830  
Phe Leu Tyr Gly Val Met Thr Trp Tyr Ile Glu Ala Val Phe Pro Gly  
835 840 845  
Gln Tyr Gly Ile Pro Arg Pro Trp Tyr Phe Pro Cys Thr Lys Ser Tyr  
850 855 860  
Trp Phe Gly Glu Glu Ser Asp Glu Lys Ser His Pro Gly Ser Asn Gln

865

870

875

880

Lys Arg Met Ser Glu Ile Cys Met Glu Glu Glu Pro Thr His Leu Lys  
885 890 895

Leu Gly Val Ser Ile Gln Asn Leu Val Lys Val Tyr Arg Asp Gly Met  
900 905 910  
;

Lys Val Ala Val Asp Gly Leu Ala Leu Asn Phe Tyr Glu Gly Gln Ile  
915 920 925

Thr Ser Phe Leu Gly His Asn Gly Ala Gly Lys Thr Thr Thr Met Ser  
930 935 940

Ile Leu Thr Gly Leu Phe Pro Pro Thr Ser Gly Thr Ala Tyr Ile Leu  
945 950 955 960

Gly Lys Asp Ile Arg Ser Glu Met Ser Thr Ile Arg Gln Asn Leu Gly  
965 970 975

Val Cys Pro Gln His Asn Val Leu Phe Asp Met Leu Thr Val Glu Glu  
980 985 990

His Ile Trp Phe Tyr Ala Arg Leu Lys Gly Leu Ser Glu Lys His Val  
995 1000 1005

Lys Ala Glu Met Glu Gln Met Ala Leu Asp Val Gly Leu Pro Ser Ser  
1010 1015 1020

Lys Leu Lys Ser Lys Thr Ser Gln Leu Ser Gly Gly Met Gln Arg Lys  
1025 1030 1035 1040

Leu Ser Val Ala Leu Ala Phe Val Gly Gly Ser Lys Val Val Ile Leu  
1045 1050 1055

Asp Glu Pro Thr Ala Gly Val Asp Pro Tyr Ser Arg Arg Gly Ile Trp  
1060 1065 1070

Glu Leu Leu Lys Tyr Arg Gln Gly Arg Thr Ile Ile Leu Ser Thr  
1075 1080 1085

His His Met Asp Glu Ala Asp Val Leu Gly Asp Arg Ile Ala Ile Ile  
1090 1095 1100

Ser His Gly Lys Leu Cys Cys Val Gly Ser Ser Leu Phe Leu Lys Asn  
1105 1110 1115 1120

Gln Leu Gly Thr Gly Tyr Tyr Leu Thr Leu Val Lys Lys Asp Val Glu

1125

1130

1135

Ser Ser Leu Ser Ser Cys Arg Asn Ser Ser Ser Thr Val Ser Tyr Leu  
1140 1145 1150

Lys Lys Glu Asp Ser Val Ser Gln Ser Ser Ser Asp Ala Gly Leu Gly  
1155 1160 1165

Ser Asp His Glu Ser Asp Thr Leu Thr Ile Asp Val Ser Ala Ile Ser  
1170 1175 1180

Asn Leu Ile Arg Lys His Val Ser Glu Ala Arg Leu Val Glu Asp Ile  
1185 1190 1195 1200

Gly His Glu Leu Thr Tyr Val Leu Pro Tyr Glu Ala Ala Lys Glu Gly  
1205 1210 1215

Ala Phe Val Glu Leu Phe His Glu Ile Asp Asp Arg Leu Ser Asp Leu  
1220 1225 1230

Gly Ile Ser Ser Tyr Gly Ile Ser Glu Thr Thr Leu Glu Glu Ile Phe  
1235 1240 1245

Leu Lys Val Ala Glu Glu Ser Gly Val Asp Ala Glu Thr Ser Asp Gly  
1250 1255 1260

Thr Leu Pro Ala Arg Arg Asn Arg Arg Ala Phe Gly Asp Lys Gln Ser  
1265 1270 1275 1280

Cys Leu Arg Pro Phe Thr Glu Asp Asp Ala Ala Asp Pro Asn Asp Ser  
1285 1290 1295

Asp Ile Asp Pro Glu Ser Arg Glu Thr Asp Leu Leu Ser Gly Met Asp  
1300 1305 1310

Gly Lys Gly Ser Tyr Gln Val Lys Gly Trp Lys Leu Thr Gln Gln Gln  
1315 1320 1325

Phe Val Ala Leu Leu Trp Lys Arg Leu Leu Ile Ala Arg Arg Ser Arg  
1330 1335 1340

Lys Gly Phe Phe Ala Gln Ile Val Leu Pro Ala Val Phe Val Cys Ile  
1345 1350 1355 1360

Ala Leu Val Phe Ser Leu Ile Val Pro Pro Phe Gly Lys Tyr Pro Ser  
1365 1370 1375

Leu Glu Leu Gln Pro Trp Met Tyr Asn Glu Gln Tyr Thr Phe Val Ser

1380

1385

1390

Asn Asp Ala Pro Glu Asp Thr Gly Thr Leu Glu Leu Leu Asn Ala Leu  
1395 1400 1405

Thr Lys Asp Pro Gly Phe Gly Thr Arg Cys Met Glu Gly Asn Pro Ile  
1410 1415 1420

Pro Asp Thr Pro Cys Gln Ala Gly Glu Glu Trp Thr Thr Ala Pro  
1425 1430 1435 1440

Val Pro Gln Thr Ile Met Asp Leu Phe Gln Asn Gly Asn Trp Thr Met  
1445 1450 1455

Gln Asn Pro Ser Pro Ala Cys Gln Cys Ser Ser Asp Lys Ile Lys Lys  
1460 1465 1470

Met Leu Pro Val Cys Pro Pro Gly Ala Gly Gly Leu Pro Pro Pro Gln  
1475 1480 1485

Arg Lys Gln Asn Thr Ala Asp Ile Leu Gln Asp Leu Thr Gly Arg Asn  
1490 1495 1500

Ile Ser Asp Tyr Leu Val Lys Thr Tyr Val Gln Ile Ile Ala Lys Ser  
1505 1510 1515 1520

Leu Lys Asn Lys Ile Trp Val Asn Glu Phe Arg Tyr Gly Gly Phe Ser  
1525 1530 1535

Leu Gly Val Ser Asn Thr Gln Ala Leu Pro Pro Ser Gln Glu Val Asn  
1540 1545 1550

Asp Ala Ile Lys Gln Met Lys Lys His Leu Lys Leu Ala Lys Asp Ser  
1555 1560 1565

Ser Ala Asp Arg Phe Leu Asn Ser Leu Gly Arg Phe Met Thr Gly Leu  
1570 1575 1580

Asp Thr Arg Asn Asn Val Lys Val Trp Phe Asn Asn Lys Gly Trp His  
1585 1590 1595 1600

Ala Ile Ser Ser Phe Leu Asn Val Ile Asn Asn Ala Ile Leu Arg Ala  
1605 1610 1615

Asn Leu Gln Lys Gly Glu Asn Pro Ser His Tyr Gly Ile Thr Ala Phe  
1620 1625 1630

Asn His Pro Leu Asn Leu Thr Lys Gln Gln Leu Ser Glu Val Ala Leu

1635 1640 1645

Met Thr Thr Ser Val Asp Val Leu Val Ser Ile Cys Val Ile Phe Ala  
1650 1655 1660

Met Ser Phe Val Pro Ala Ser Phe Val Val Phe Leu Ile Gln Glu Arg  
1665 1670 1675 1680

Val Ser Lys Ala Lys His Leu Gln Phe Ile Ser Gly Val Lys Pro Val  
1685 1690 1695

Ile Tyr Trp Leu Ser Asn Phe Val Trp Asp Met Cys Asn Tyr Val Val  
1700 1705 1710

Pro Ala Thr Leu Val Ile Ile Phe Ile Cys Phe Gln Gln Lys Ser  
1715 1720 1725

Tyr Val Ser Ser Thr Asn Leu Pro Val Leu Ala Leu Leu Leu Leu  
1730 1735 1740

Tyr Gly Trp Ser Ile Thr Pro Leu Met Tyr Pro Ala Ser Phe Val Phe  
1745 1750 1755 1760

Lys Ile Pro Ser Thr Ala Tyr Val Val Leu Thr Ser Val Asn Leu Phe  
1765 1770 1775

Ile Gly Ile Asn Gly Ser Val Ala Thr Phe Val Leu Glu Leu Phe Thr  
1780 1785 1790

Asp Asn Lys Leu Asn Asn Ile Asn Asp Ile Leu Lys Ser Val Phe Leu  
1795 1800 1805

Ile Phe Pro His Phe Cys Leu Gly Arg Gly Leu Ile Asp Met Val Lys  
1810 1815 1820

Asn Gln Ala Met Ala Asp Ala Leu Glu Arg Phe Gly Glu Asn Arg Phe  
1825 1830 1835 1840

Val Ser Pro Leu Ser Trp Asp Leu Val Gly Arg Asn Leu Phe Ala Met  
1845 1850 1855

Ala Val Glu Gly Val Val Phe Phe Leu Ile Thr Val Leu Ile Gln Tyr  
1860 1865 1870

Arg Phe Phe Ile Arg Pro Arg Pro Val Asn Ala Lys Leu Ser Pro Leu  
1875 1880 1885

Asn Asp Glu Asp Glu Asp Val Arg Arg Glu Arg Gln Arg Ile Leu Asp

1890 1895 1900

Gly Gly Gly Gln Asn Asp Ile Leu Glu Ile Lys Glu Leu Thr Lys Ile  
1905 1910 1915 1920

Tyr Arg Arg Lys Arg Lys Pro Ala Val Asp Arg Ile Cys Val Gly Ile  
1925 1930 1935

Pro Pro Gly Glu Cys Phe Gly Leu Leu Gly Val Asn Gly Ala Gly Lys  
1940 1945 1950

Ser Ser Thr Phe Lys Met Leu Thr Gly Asp Thr Thr Val Thr Arg Gly  
1955 1960 1965

Asp Ala Phe Leu Asn Lys Asn Ser Ile Leu Ser Asn Ile His Glu Val  
1970 1975 1980

His Gln Asn Met Gly Tyr Cys Pro Gln Phe Asp Ala Ile Thr Glu Leu  
1985 1990 1995 2000

Leu Thr Gly Arg Glu His Val Glu Phe Phe Ala Leu Leu Arg Gly Val  
2005 2010 2015

Pro Glu Lys Glu Val Gly Lys Val Gly Glu Trp Ala Ile Arg Lys Leu  
2020 2025 2030

Gly Leu Val Lys Tyr Gly Glu Lys Tyr Ala Gly Asn Tyr Ser Gly Gly  
2035 2040 2045

Asn Lys Arg Lys Leu Ser Thr Ala Met Ala Leu Ile Gly Gly Pro Pro  
2050 2055 2060

Val Val Phe Leu Asp Glu Pro Thr Thr Gly Met Asp Pro Lys Ala Arg  
2065 2070 2075 2080

Arg Phe Leu Trp Asn Cys Ala Leu Ser Val Val Lys Glu Gly Arg Ser  
2085 2090 2095

Val Val Leu Thr Ser His Ser Met Glu Glu Cys Glu Ala Leu Cys Thr  
2100 2105 2110

Arg Met Ala Ile Met Val Asn Gly Arg Phe Arg Cys Leu Gly Ser Val  
2115 2120 2125

Gln His Leu Lys Asn Arg Phe Gly Asp Gly Tyr Thr Ile Val Val Arg  
2130 2135 2140

Ile Ala Gly Ser Asn Pro Asp Leu Lys Pro Val Gln Asp Phe Phe Gly

2145

2150

2155

2160

Leu Ala Phe Pro Gly Ser Val Leu Lys Glu Lys His Arg Asn Met Leu  
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Gln Tyr Gln Leu Pro Ser Ser Leu Ser Ser Leu Ala Arg Ile Phe Ser  
2180 2185 2190

Ile Leu Ser Gln Ser Lys Lys Arg Leu His Ile Glu Asp Tyr Ser Val  
2195 2200 2205

Ser Gln Thr Thr Leu Asp Gln Val Phe Val Asn Phe Ala Lys Asp Gln  
2210 2215 2220

Ser Asp Asp Asp His Leu Lys Asp Leu Ser Leu His Lys Asn Gln Thr  
2225 2230 2235 2240

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2245 2250 2255

Lys Glu Ser Tyr Val  
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<211> 1643

<212> DNA

<213> Homo sapiens

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agttctggaa tatgtatggag ctggaggtgg gaagagaagt aggcttgggg cagctctctc 240  
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<211> 748  
<212> DNA  
<213> Homo sapiens

<220>  
<221> unsure  
<222> (1)..(748)  
<223> All n's are unknown.

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aacagatatg nccatgatta cgccaaagtta tttaggtgcn cgatagaata ctcaagctt 240  
gaattcgcgg ccgcagtcga cggacccccc ggaaagattc ctctcattac acaaaaacca 300  
gacagtagtg gacgttgcag ttctcacatc ttctctacag gatgagaaag taaaagaaaag 360  
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ccattacagg ggcagtcct ttgttagccta tgtttgtat ggctctcaag taaaagactt 600  
gaatttagtt ttttacctat acctatgtga aactctatta tggacccaa tggacatatg 660  
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<211> 2011  
<212> DNA  
<213> Homo sapiens

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tactgtactg atactattca atgcaatgca attcaatgca atgaaaacaa aattccatta 180  
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tctttcaata tcattactaa cttcttccac ttttccaaa atttgaatat taacgctaaa 1920  
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<210> 6  
<211> 3366  
<212> DNA  
<213> Homo sapiens

<220>  
<221> unsure  
<222> (1)..(3366)  
<223> All n's are unknown.

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caagtaatca tggccagcga ttattgatca aaatcaaaag gtaatgcaca tcctcattca 420  
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<210> 7  
<211> 10474  
<212> DNA  
<213> Homo sapiens

<220>  
<221> unsure  
<222> (1)..(10474)  
<223> All n's are unknown.

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Asp Asn Val Glu Arg Thr Asn Lys Ile Lys Asp Gly Tyr Trp Asp Pro  
565 570 575

Gly Pro Arg Ala Asp Pro Phe Glu Asp Met Trp Tyr Val Trp Gly Gly  
580 585 590

Phe Ala Tyr Leu Gln Asp Val Val Glu Gln Ala Ile Ile Arg Val Leu  
595 600 605

Thr Gly Thr Glu Lys Lys Thr Gly Val Tyr Met Gln Gln Met Pro Tyr  
610 615 620

Pro Cys Tyr Val Asp Asp Ile Phe Leu Arg Val Met Ser Arg Ser Met  
625 630 635 640

Pro Leu Phe Met Thr Leu Ala Trp Ile Tyr Ser Val Ala Val Ile Ile  
645 650 655

Lys Gly Ile Val Tyr Glu Lys Glu Ala Arg Leu Lys Glu Thr Met Arg  
660 665 670

Ile Met Gly Leu Asp Asn Ser Ile Leu Trp Phe Ser Trp Phe Ile Ser  
675 680 685

Ser Leu Ile Pro Leu Leu Val Ser Ala Gly Leu Leu Val Val Ile Leu  
690 695 700

Lys Leu Gly Asn Leu Leu Pro Tyr Ser Asp Pro Ser Val Val Phe Val  
705 710 715 720

Phe Leu Ser Val Phe Ala Val Val Thr Ile Leu Gln Cys Phe Leu Ile  
725 730 735

Ser Thr Leu Phe Ser Arg Ala Asn Leu Ala Ala Ala Cys Gly Gly Ile  
740 745 750

Ile Tyr Phe Thr Leu Tyr Leu Pro Tyr Val Leu Cys Val Ala Trp Gln  
755 760 765

Asp Tyr Val Gly Phe Thr Leu Lys Ile Phe Ala Ser Leu Leu Ser Pro

770 775 780

Val Ala Phe Gly Phe Gly Cys Glu Tyr Phe Ala Leu Phe Glu Glu Gln  
785 790 795 800

Gly Ile Gly Val Gln Trp Asp Asn Leu Phe Glu Ser Pro Val Glu Glu  
805 810 815

Asp Gly Phe Asn Leu Thr Thr Ser Ile Ser Met Met Leu Phe Asp Thr  
820 825 830

Phe Leu Tyr Gly Val Met Thr Trp Tyr Ile Glu Ala Val Phe Pro Gly  
835 840 845

Gln Tyr Gly Ile Pro Arg Pro Trp Tyr Phe Pro Cys Thr Lys Ser Tyr  
850 855 860

Trp Phe Gly Glu Glu Ser Asp Glu Lys Ser His Pro Gly Ser Asn Gln  
865 870 875 880

Lys Arg Met Ser Glu Ile Cys Met Glu Glu Glu Pro Thr His Leu Lys  
885 890 895

Leu Gly Val Ser Ile Gln Asn Leu Val Lys Val Tyr Arg Asp Gly Met  
900 905 910

Lys Val Ala Val Asp Gly Leu Ala Leu Asn Phe Tyr Glu Gly Gln Ile  
915 920 925

Thr Ser Phe Leu Gly His Asn Gly Ala Gly Lys Thr Thr Thr Met Ser  
930 935 940

Ile Leu Thr Gly Leu Phe Pro Pro Thr Ser Gly Thr Ala Tyr Ile Leu  
945 950 955 960

Gly Lys Asp Ile Arg Ser Glu Met Ser Thr Ile Arg Gln Asn Leu Gly  
965 970 975

Val Cys Pro Gln His Asn Val Leu Phe Asp Met Leu Thr Val Glu Glu  
980 985 990

His Ile Trp Phe Tyr Ala Arg Leu Lys Gly Leu Ser Glu Lys His Val  
995 1000 1005

Lys Ala Glu Met Glu Gln Met Ala Leu Asp Val Gly Leu Pro Ser Ser  
1010 1015 1020

Lys Leu Lys Ser Lys Thr Ser Gln Leu Ser Gly Gly Met Gln Arg Lys

1025

1030

1035

1040

Leu Ser Val Ala Leu Ala Phe Val Gly Gly Ser Lys Val Val Ile Leu  
1045 1050 1055

Asp Glu Pro Thr Ala Gly Val Asp Pro Tyr Ser Arg Arg Gly Ile Trp  
1060 1065 1070

Glu Leu Leu Leu Lys Tyr Arg Gln Gly Arg Thr Ile Ile Leu Ser Thr  
1075 1080 1085

His His Met Asp Glu Ala Asp Val Leu Gly Asp Arg Ile Ala Ile Ile  
1090 1095 1100

Ser His Gly Lys Leu Cys Cys Val Gly Ser Ser Leu Phe Leu Lys Asn  
1105 1110 1115 1120

Gln Leu Gly Thr Gly Tyr Tyr Leu Thr Leu Val Lys Lys Asp Val Glu  
1125 1130 1135

Ser Ser Leu Ser Ser Cys Arg Asn Ser Ser Ser Thr Val Ser Tyr Leu  
1140 1145 1150

Lys Lys Glu Asp Ser Val Ser Gln Ser Ser Ser Asp Ala Gly Leu Gly  
1155 1160 1165

Ser Asp His Glu Ser Asp Thr Leu Thr Ile Asp Val Ser Ala Ile Ser  
1170 1175 1180

Asn Leu Ile Arg Lys His Val Ser Glu Ala Arg Leu Val Glu Asp Ile  
1185 1190 1195 1200

Gly His Glu Leu Thr Tyr Val Leu Pro Tyr Glu Ala Ala Lys Glu Gly  
1205 1210 1215

Ala Phe Val Glu Leu Phe His Glu Ile Asp Asp Arg Leu Ser Asp Leu  
1220 1225 1230

Gly Ile Ser Ser Tyr Gly Ile Ser Glu Thr Thr Leu Glu Glu Ile Phe  
1235 1240 1245

Leu Lys Val Ala Glu Glu Ser Gly Val Asp Ala Glu Thr Ser Asp Gly  
1250 1255 1260

Thr Leu Pro Ala Arg Arg Asn Arg Arg Ala Phe Gly Asp Lys Gln Ser  
1265 1270 1275 1280

Cys Leu Arg Pro Phe Thr Glu Asp Asp Ala Ala Asp Pro Asn Asp Ser

1285

1290

1295

Asp Ile Asp Pro Glu Ser Arg Glu Thr Asp Leu Leu Ser Gly Met Asp  
1300 1305 1310

Gly Lys Gly Ser Tyr Gln Val Lys Gly Trp Lys Leu Thr Gln Gln Gln  
1315 1320 1325

Phe Val Ala Leu Leu Trp Lys Arg Leu Leu Ile Ala Arg Arg Ser Arg  
1330 1335 1340

Lys Gly Phe Phe Ala Gln Ile Val Leu Pro Ala Val Phe Val Cys Ile  
1345 1350 1355 1360

Ala Leu Val Phe Ser Leu Ile Val Pro Pro Phe Gly Lys Tyr Pro Ser  
1365 1370 1375

Leu Glu Leu Gln Pro Trp Met Tyr Asn Glu Gln Tyr Thr Phe Val Ser  
1380 1385 1390

Asn Asp Ala Pro Glu Asp Thr Gly Thr Leu Glu Leu Leu Asn Ala Leu  
1395 1400 1405

Thr Lys Asp Pro Gly Phe Gly Thr Arg Cys Met Glu Gly Asn Pro Ile  
1410 1415 1420

Pro Asp Thr Pro Cys Gln Ala Gly Glu Glu Trp Thr Thr Ala Pro  
1425 1430 1435 1440

Val Pro Gln Thr Ile Met Asp Leu Phe Gln Asn Gly Asn Trp Thr Met  
1445 1450 1455

Gln Asn Pro Ser Pro Ala Cys Gln Cys Ser Ser Asp Lys Ile Lys Lys  
1460 1465 1470

Met Leu Pro Val Cys Pro Pro Gly Ala Gly Gly Leu Pro Pro Pro Gln  
1475 1480 1485

Arg Lys Gln Asn Thr Ala Asp Ile Leu Gln Asp Leu Thr Gly Arg Asn  
1490 1495 1500

Ile Ser Asp Tyr Leu Val Lys Thr Tyr Val Gln Ile Ile Ala Lys Ser  
1505 1510 1515 1520

Leu Lys Asn Lys Ile Trp Val Asn Glu Phe Arg Tyr Gly Gly Phe Ser  
1525 1530 1535

Leu Gly Val Ser Asn Thr Gln Ala Leu Pro Pro Ser Gln Glu Val Asn

1540 1545 1550  
Asp Ala Ile Lys Gln Met Lys Lys His Leu Lys Leu Ala Lys Asp Ser  
1555 1560 1565  
Ser Ala Asp Arg Phe Leu Asn Ser Leu Gly Arg Phe Met Thr Gly Leu  
1570 1575 1580  
Asp Thr Arg Asn Asn Val Lys Val Trp Phe Asn Asn Lys Gly Trp His  
1585 1590 1595 1600  
Ala Ile Ser Ser Phe Leu Asn Val Ile Asn Asn Ala Ile Leu Arg Ala  
1605 1610 1615  
Asn Leu Gln Lys Gly Glu Asn Pro Ser His Tyr Gly Ile Thr Ala Phe  
1620 1625 1630  
Asn His Pro Leu Asn Leu Thr Lys Gln Gln Leu Ser Glu Val Ala Leu  
1635 1640 1645  
Met Thr Thr Ser Val Asp Val Leu Val Ser Ile Cys Val Ile Phe Ala  
1650 1655 1660  
Met Ser Phe Val Pro Ala Ser Phe Val Val Phe Leu Ile Gln Glu Arg  
1665 1670 1675 1680  
Val Ser Lys Ala Lys His Leu Gln Phe Ile Ser Gly Val Lys Pro Val  
1685 1690 1695  
Ile Tyr Trp Leu Ser Asn Phe Val Trp Asp Met Cys Asn Tyr Val Val  
1700 1705 1710  
Pro Ala Thr Leu Val Ile Ile Phe Ile Cys Phe Gln Gln Lys Ser  
1715 1720 1725  
Tyr Val Ser Ser Thr Asn Leu Pro Val Leu Ala Leu Leu Leu Leu  
1730 1735 1740  
Tyr Gly Trp Ser Ile Thr Pro Leu Met Tyr Pro Ala Ser Phe Val Phe  
1745 1750 1755 1760  
Lys Ile Pro Ser Thr Ala Tyr Val Val Leu Thr Ser Val Asn Leu Phe  
1765 1770 1775  
Ile Gly Ile Asn Gly Ser Val Ala Thr Phe Val Leu Glu Leu Phe Thr  
1780 1785 1790  
Asp Asn Lys Leu Asn Asn Ile Asn Asp Ile Leu Lys Ser Val Phe Leu

1795 1800 1805

Ile Phe Pro His Phe Cys Leu Gly Arg Gly Leu Ile Asp Met Val Lys  
1810 1815 1820

Asn Gln Ala Met Ala Asp Ala Leu Glu Arg Phe Gly Glu Asn Arg Phe  
1825 1830 1835 1840

Val Ser Pro Leu Ser Trp Asp Leu Val Gly Arg Asn Leu Phe Ala Met  
1845 1850 1855

Ala Val Glu Gly Val Val Phe Phe Leu Ile Thr Val Leu Ile Gln Tyr  
1860 1865 1870

Arg Phe Phe Ile Arg Pro Arg Pro Val Asn Ala Lys Leu Ser Pro Leu  
1875 1880 1885

Asn Asp Glu Asp Glu Asp Val Arg Arg Glu Arg Gln Arg Ile Leu Asp  
1890 1895 1900

Gly Gly Gly Gln Asn Asp Ile Leu Glu Ile Lys Glu Leu Thr Lys Ile  
1905 1910 1915 1920

Tyr Arg Arg Lys Arg Lys Pro Ala Val Asp Arg Ile Cys Val Gly Ile  
1925 1930 1935

Pro Pro Gly Glu Cys Phe Gly Leu Leu Gly Val Asn Gly Ala Gly Lys  
1940 1945 1950

Ser Ser Thr Phe Lys Met Leu Thr Gly Asp Thr Thr Val Thr Arg Gly  
1955 1960 1965

Asp Ala Phe Leu Asn Lys Asn Ser Ile Leu Ser Asn Ile His Glu Val  
1970 1975 1980

His Gln Asn Met Gly Tyr Cys Pro Gln Phe Asp Ala Ile Thr Glu Leu  
1985 1990 1995 2000

Leu Thr Gly Arg Glu His Val Glu Phe Phe Ala Leu Leu Arg Gly Val  
2005 2010 2015

Pro Glu Lys Glu Val Gly Lys Val Gly Glu Trp Ala Ile Arg Lys Leu  
2020 2025 2030

Gly Leu Val Lys Tyr Gly Glu Lys Tyr Ala Gly Asn Tyr Ser Gly Gly  
2035 2040 2045

Asn Lys Arg Lys Leu Ser Thr Ala Met Ala Leu Ile Gly Gly Pro Pro

2050 2055 2060

Val Val Phe Leu Asp Glu Pro Thr Thr Gly Met Asp Pro Lys Ala Arg  
2065 2070 2075 2080

Arg Phe Leu Trp Asn Cys Ala Leu Ser Val Val Lys Glu Gly Arg Ser  
2085 2090 2095

Val Val Leu Thr Ser His Ser Met Glu Glu Cys Glu Ala Leu Cys Thr  
2100 2105 2110

Arg Met Ala Ile Met Val Asn Gly Arg Phe Arg Cys Leu Gly Ser Val  
2115 2120 2125

Gln His Leu Lys Asn Arg Phe Gly Asp Gly Tyr Thr Ile Val Val Arg  
2130 2135 2140

Ile Ala Gly Ser Asn Pro Asp Leu Lys Pro Val Gln Asp Phe Phe Gly  
2145 2150 2155 2160

Leu Ala Phe Pro Gly Ser Val Leu Lys Glu Lys His Arg Asn Met Leu  
2165 2170 2175

Gln Tyr Gln Leu Pro Ser Ser Leu Ser Ser Leu Ala Arg Ile Phe Ser  
2180 2185 2190

Ile Leu Ser Gln Ser Lys Lys Arg Leu His Ile Glu Asp Tyr Ser Val  
2195 2200 2205

Ser Gln Thr Thr Leu Asp Gln Val Phe Val Asn Phe Ala Lys Asp Gln  
2210 2215 2220

Ser Asp Asp Asp His Leu Lys Asp Leu Ser Leu His Lys Asn Gln Thr  
2225 2230 2235 2240

Val Val Asp Val Ala Val Leu Thr Ser Phe Leu Gln Asp Glu Lys Val  
2245 2250 2255

Lys Glu Ser Tyr Val  
2260

<210> 11  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: ABC1  
amplification primer

<400> 11  
cctctcatta cacaaaaacc agac

24

<210> 12  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: ABC1  
amplification primer

<400> 12  
gctttctttc acttctcatc ctg

23

<210> 13  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: ABC1 RT-PCR  
primer

<400> 13  
tccttgggtt caggggattta tc

22

<210> 14  
<211> 21  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: ABC1 RT-PCR  
primer

<400> 14  
caatgttttt gtggcttcgg c

21

<210> 15  
<211> 40  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: ABC1 RT-PCR  
primer

<400> 15

agtgcagctc caaacatgtc agctgttact ggaagtggcc

40

<210> 16

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: ABC1 RT-PCR  
primer

<400> 16

tctctggatt ctgggtctat gtcag

25

<210> 17

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: ABC1 RT-PCR  
primer

<400> 17

gggagccttt gtggaactct ttc

23

<210> 18

<211> 41

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: ABC1 RT-PCR  
primer

<400> 18

actggtcgac cattgaattt cattgcattt aatagtatca g

41

<210> 19

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: ABC1  
sequencing primer

<400> 19  
tttcctggtg gacaatgaa

19

<210> 20  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: ABC1  
sequencing primer

<400> 20  
agtgacatgc gacaggag

18

<210> 21  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: ABC1  
sequencing primer

<400> 21  
gatctggaag gcatgtgg

18

<210> 22  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: ABC1  
sequencing primer

<400> 22  
ccaggcagca ttgagctg

18

<210> 23  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: ABC1  
sequencing primer

<400> 23  
ggcctggaca acagcata

18

<210> 24  
<211> 19  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: ABC1  
sequencing primer

<400> 24  
ggacaacctg tttgagagt

19

<210> 25  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: ABC1  
sequencing primer

<400> 25  
aagacgacca ccatgtca

18

<210> 26  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: ABC1  
sequencing primer

<400> 26  
atatggagc tgctgctg

18

<210> 27  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: ABC1  
sequencing primer

<400> 27  
gggcatgagc tgacctatgt gctg

24

<210> 28  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: ABC1  
sequencing primer

<400> 28  
aagagactgc taattgcc

18

<210> 29  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: ABC1  
sequencing primer

<400> 29  
agcgacaaaa tcaagaag

18

<210> 30  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: ABC1  
sequencing primer

<400> 30  
tggcatgcaa tcagctct

18

<210> 31  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: ABC1  
sequencing primer

<400> 31  
tcctccacca atctgcct

18

<210> 32  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: ABC1  
sequencing primer

<400> 32  
tttttcctca ttactgtt  
<210> 33  
<211> 18  
<212> DNA  
<213> Artificial Sequence

18

<220>  
<223> Description of Artificial Sequence: ABC1  
sequencing primer

<400> 33  
gatgccatca cagagctg  
<210> 34  
<211> 17  
<212> DNA  
<213> Artificial Sequence

18

<220>  
<223> Description of Artificial Sequence: ABC1  
sequencing primer

<400> 34  
agtgtccagc atctaaa  
<210> 35  
<211> 18  
<212> DNA  
<213> Artificial Sequence

17

<220>

<223> Description of Artificial Sequence: ABC1  
sequencing primer

<400> 35  
caaagttcac aaatactt

18

<210> 36  
<211> 19  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: ABC1  
sequencing primer

<400> 36  
cttagggcac aattccaca

19

<210> 37  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: ABC1  
sequencing primer

<400> 37  
tgaaaagtga tgatttgc

18

<210> 38  
<211> 19  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: ABC1  
sequencing primer

<400> 38  
ttttcacca tgtcgatga

19

<210> 39  
<211> 17  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: ABC1  
sequencing primer

<400> 39  
ctccactgat gaactgc

17

<210> 40  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: ABC1  
sequencing primer

<400> 40  
gtttcttcat ttgtttga  
<210> 41  
<211> 18  
<212> DNA  
<213> Artificial Sequence

18

<220>  
<223> Description of Artificial Sequence: ABC1  
sequencing primer

<400> 41  
agggcgtgtc tgggattg  
<210> 42  
<211> 18  
<212> DNA  
<213> Artificial Sequence

18

<220>  
<223> Description of Artificial Sequence: ABC1  
sequencing primer

<400> 42  
cagaatcatt tggatcag  
<210> 43  
<211> 18  
<212> DNA  
<213> Artificial Sequence

18

<220>

<223> Description of Artificial Sequence: ABC1  
sequencing primer

<400> 43  
catcagaact gctctgag

18

<210> 44  
<211> 19  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: ABC1  
sequencing primer

<400> 44  
agctggcttg ttttgcttt

19

<210> 45  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: ABC1  
sequencing primer

<400> 45  
tggacacgccc cagcttca

18

<210> 46  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: ABC1  
sequencing primer

<400> 46  
cctgccatgc cacacaca

18

<210> 47  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: ABC1  
sequencing primer

<400> 47  
ctcatcaccc gcagaaag

18

<210> 48  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: ABC1  
sequencing primer

<400> 48  
cacactccat gaagcgag

18

<210> 49  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: ABC1  
sequencing primer

<400> 49  
tccagataat gcggggaaa

18

<210> 50  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: ABC1  
sequencing primer

<400> 50  
tcaggattgg cttcagga  
  
<210> 51  
<211> 21  
<212> DNA  
<213> Artificial Sequence

18

<220>

<223> Description of Artificial Sequence: ABC1  
sequencing primer

<400> 51  
aagtttgagc tggatttctt g

21

<210> 52  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: beta-globin  
antisense oligonucleotide

<400> 52  
cctcttacct cagttacaat ttata

25

<210> 53  
<211> 26  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: ABC1 antisense  
oligonucleotide

<400> 53  
catgttgttc atagggtggg tagctc

26

<210> 54  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: beta-actin  
amplification primer

<400> 54  
tcacccacac tgtgccatct acga

24

<210> 55  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>

a1

<223> Description of Artificial Sequence: beta-actin  
amplification primer

<400> 55

cagcggAACc gtcattGCC aatgg

25

<210> 56

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: sterol  
response element oligonucleotide

<400> 56

tcgagtGACC gatAGTAACC ttcgA

26

<210> 57

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: mutated sterol  
response element oligonucleotide

<400> 57

tcgagCTGCA catAGTAACC ttcgA

26